Claims

1. (Canceled)

2. (Canceled)

3. (Canceled)

4. (Canceled)

5. (Canceled)

6. (Canceled)

7. (Canceled)

8. (Canceled)

9. (Canceled)

10. (Canceled)

11. (Canceled)

12. (Canceled)

13. (Canceled)

14. (Canceled)

15. (Canceled)

16. (Previously Presented) A method of operating an optical communication system, comprising:

increasing a spectrum width of a first optical channel space defined by a passband of a first filter by at least an amount equal to a spectrum width of a second optical channel space defined by a passband of a second filter to create a new optical channel space defined by an increased passband of the first filter;

wherein the new optical channel space has a spectrum width at least equal to a sum of the spectrum width of the first optical channel space and the spectrum width of the second optical channel space; and

communicating a signal over the new optical channel space at a bit rate requiring the spectrum width of the new optical channel space.

17. (Canceled)

18. (Previously Presented) The method of Claim 16, further comprising deactivating a transponder associated with the second optical channel space.

19. (Previously Presented) A fiber optic communication system, comprising:

a first optical channel space defined by a passband of a first tunable filter and having a first spectrum width;

a second optical channel space adjacent to the first optical channel space, the second optical channel space defined by a passband of a second tunable filter and having a second spectrum width;

the second tunable filter operable to increase the second spectrum width of the second optical channel space by at least an amount equal to the first spectrum width to create a new optical channel space defined by an increased passband of the second tunable filter and having a third spectrum width, the new optical channel space operable to carry a signal at a bit rate requiring the third spectrum width.

20. (Previously Presented) A method of operating an optical communication system, comprising:

dividing a first spectrum width of a first optical channel space defined by a passband of a first filter to create a second optical channel space defined by a decreased passband of the first filter and having a second spectrum width and a third optical channel space defined by a passband of a second filter having a third spectrum width;

wherein a sum of the second spectrum width and the third spectrum width is equal to or less than the first spectrum width;

communicating a signal over the second optical channel space at a bit rate requiring a spectrum width equal to or less than the second spectrum width; and

communicating a signal over the third optical channel space at a bit rate requiring a spectrum width equal to or less than the third spectrum width.

21. (Canceled)

22. (Previously Presented) A fiber optic communication system, comprising:

a first optical channel space defined by a passband of a first tunable filter and having a first spectrum width;

the first tunable filter operable to divide the first spectrum width of the first optical channel space to create a second optical channel space defined by a decreased passband of the first tunable filter and having a second spectrum width and a third optical channel space adjacent to the second optical channel space, the third optical channel space defined by a passband of a second tunable filter and having a third spectrum width; and

wherein a sum of the second spectrum width and the third spectrum width is equal to or less than the first spectrum width.

23. (Previously Presented) A fiber optic communication system, comprising:

a plurality of emitters, each emitter operable to communicate a signal over a respective initial channel, wherein each initial channel has a respective initial spectrum width;

a plurality of modulators, each modulator coupled to at least one of the plurality of emitters, wherein each modulator is operable to modulate data onto a signal; and

a plurality of passband filters, each filter coupled to at least one of the plurality of emitters, wherein each filter is operable to vary the initial spectrum width of at least one of the initial channels to form at least one new channel that utilizes a channel spacing of at least one of the initial channels, wherein the at least one new channel has a respective new spectrum width.

24. (Previously Presented) The method of Claim 16, wherein the first optical channel space is adjacent the second optical channel space, and wherein the new optical channel space comprises the first optical channel space and the second optical channel space.

25. (Previously Presented) The system of Claim 19, further comprising a transponder associated with the first optical channel space, the transponder configured to be deactivated when the new optical channel space is created.

26. (Previously Presented) The system of Claim 19, wherein the first optical channel space is adjacent the second optical channel space, and wherein the new optical channel space comprises the first optical channel space and the second optical channel space.

27. (Previously Presented) The method of Claim 20, wherein the second optical channel space is adjacent the third optical channel space, and wherein the second optical channel space and the third optical channel space collectively comprise the first optical channel space.

28. (Previously Presented) The method of Claim 20, further comprising activating a transponder associated with the second optical channel space and a transponder associated with the third optical channel space when the new channel space is created.

29. (Previously Presented) The system of Claim 22, wherein the second optical channel space and the third optical channel space collectively comprise the first optical channel space.

30. (Previously Presented) The system of Claim 22, further comprising a transponder associated with the second optical channel space and a transponder associated with the third optical channel space, the transponders configured to be activated when the new optical channel space is created.

31. (Previously Presented) A method of operating an optical communication system, comprising:

communicating through a first transponder a first signal over a first optical channel space at a bit rate requiring a first spectrum width of the first optical channel space;

communicating through a second transponder a second signal over a second optical channel space at a bit rate requiring a second spectrum width of the second optical channel space;

increasing the first spectrum width of the first optical channel space by at least an amount equal to the second spectrum width of the second optical channel space to create a new optical channel space;

wherein the new optical channel space has a spectrum width at least equal to a sum of the first spectrum width of the first optical channel space and the second spectrum width of the second optical channel space;

deactivating the second transponder after increasing the first spectrum width of the first optical channel space; and

communicating through the first transponder a signal over the new optical channel space at a bit rate requiring the spectrum width of the new optical channel space.

32. (Previously Presented) A method of operating an optical communication system, comprising:

communicating through a first transponder a first signal over a first optical channel space at a bit rate requiring a first spectrum width of the first optical channel space;

dividing the first spectrum width of the first optical channel space to create a second optical channel space having a second spectrum width and a third optical channel space having a third spectrum width;

wherein a sum of the second spectrum width and the third spectrum width is equal to or less than the first spectrum width;

communicating through the first transponder a signal over the second optical channel space at a bit rate requiring a spectrum width equal to or less than the second spectrum width; and

activating a second transponder to communicate a signal over the third optical channel space at a bit rate requiring a spectrum width equal to or less than the third spectrum width.